76. A method of reducing cellular production of amyloid beta (Aβ ) from amyloid precursor protein (APP), comprising step of transforming or transfecting cells with an anti-sense reagent capable of reducing Asp2 polypeptide production by reducing Asp2 transcription or translation in the cells, wherein reduced Asp2 polypeptide production in the cells correlates with reduced cellular processing of APP into Aβ .

77. A method of reducing cellular production of amyloid beta (Aβ ) from amyloid precursor protein (APP), comprising steps of:

(a) identifying mammalian cells that produce Aβ ; and

(b) transforming or transfecting the cells with an anti-sense reagent capable of reducing Asp2 polypeptide production by reducing Asp2 transcription or translation in the cells, wherein reduced Asp2 polypeptide production in the cells correlates with reduced cellular processing of APP into Aβ .

78. A method according to claim 77, wherein the identifying step comprises diagnosing Alzheimer's disease, where Alzheimer's disease correlates with the existence of cells that produce Aβ that forms amyloid plaques in the brain.

79. A method according to any one of claims 76-78, wherein the cell is a neural cell.

80. A method according to any one of claims 76-79, wherein the anti-sense reagent comprises an oligonucleotide comprising a single stranded nucleic acid sequence capable of binding to a Hu-Asp mRNA.

81. A method according to any one of claims 76-80, wherein the anti-sense reagent comprises an oligonucleotide comprising a single stranded nucleic acid sequence capable of binding to a Hu-Asp DNA.

82. A polypeptide comprising the amino acid sequence of a mammalian amyloid protein precursor (APP) or fragment thereof containing an APP cleavage site recognizable by a mammalian β-secretase, and further comprising two lysine residues at the carboxyl terminus of the amino acid sequence of the mammalian APP or APP fragment.

83. A polypeptide according to claim 82 comprising the amino acid sequence of a mammalian amyloid protein precursor (APP), and further comprising two lysine residues at the carboxyl terminus of the amino acid sequence of the mammalian amyloid protein precursor.

84. A polypeptide according to claim 82 or 83, wherein the mammalian APP is a human APP.

85. A polypeptide according to any one of claims 82-84, wherein the human APP comprises at least one variation selected from the group consisting of a Swedish KM→NL mutation and a London V717→F mutation.

86 A polynucleotide comprising a nucleotide sequence that encodes a polypeptide according to any one of claims 82-85.

87. A vector comprising a polynucleotide according to claim 86.

88. A vector according to claim 87 wherein said polynucleotide is operably linked to a promoter to promote expression of the polypeptide encoded by the polynucleotide in a host cell.

89. A host cell transformed or transfected with a polynucleotide according to claim 86 or a vector according to claim 87 or 88.

90. A host cell according to claim 89 that is a mammalian cell.

91. An isolated nucleic acid molecule comprising a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:

(a) a nucleotide sequence encoding a Hu-Asp polypeptide selected from the group consisting of Hu-Asp1, Hu-Asp2(a), and Hu-Asp2(b), wherein said Hu-Asp1, Hu-Asp2(a) and Hu-Asp2(b) polypeptides have the complete amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, and SEQ ID No:6, respectively; and

(b) a nucleotide sequence complementary to the nucleotide sequence of (a).

92. The nucleic acid molecule of claim 91, wherein said Hu-Asp polypeptide is Hu-Asp1.

93. The nucleic acid molecule of claim 91, wherein said Hu-Asp polypeptide is Hu-Asp2(a).

94. The nucleic acid molecule of claim 91, wherein said Hu-Asp polypeptide is Hu-Asp2(b).

95. An isolated nucleic acid molecule comprising polynucleotide which hybridizes under stringent conditions to a polynucleotide comprising a nucleotide sequence selected from:

(a) a nucleotide sequence encoding a Hu-Asp polypeptide selected from the group consisting of Hu-Asp1, Hu-Asp2(a), and Hu-Asp2(b), wherein said Hu-Asp1, Hu-Asp2(a) and Hu-Asp2(b) polypeptides have the complete amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, and SEQ ID No:6, respectively; and

(b) a nucleotide sequence complementary to the nucleotide sequence of (a).

96. A vector comprising the nucleic acid molecule of any one of claims 91-95.

97. The vector of claim 96, wherein said nucleic acid molecule is operably linked to a promoter for the expression of a Hu-Asp polypeptide.

98. A host cell comprising the vector of claim 96 or 97.

99. A method of obtaining a Hu-Asp polypeptide comprising culturing the host cell of claim 98 and isolating said Hu-Asp polypeptide.

100. An isolated Hu-Asp1 polypeptide comprising an amino acid sequence at least 95% identical to a sequence comprising the amino acid sequence of SEQ ID NO:2.

101. An isolated Hu-Asp2(a) polypeptide comprising an amino acid sequence at least 95% identical to a sequence comprising the amino acid sequence of SEQ ID NO:4.

102. An isolated Hu-Asp2(a) polypeptide comprising an amino acid sequence at least 95% identical to a sequence comprising the amino acid sequence of SEQ ID NO:8.